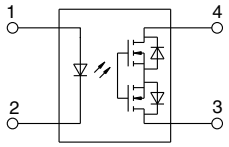
C×R3 type, VSSOP package, 20 V load voltage

PhotoMOS® RF VSSOP 1 Form A C×R3 (AQY22○○○T)

mm inch



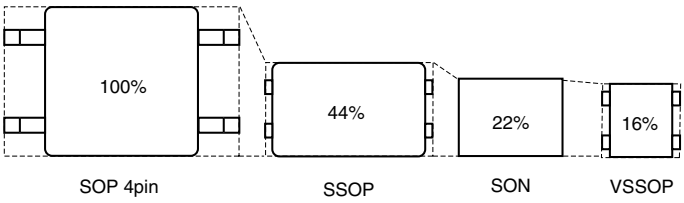
RoHS compliant

FEATURES

1. Miniature VSSOP package

4.6 mm² mounting area achieved. Approx. 29% less than previous product (SON type).

Contributes to the miniaturization of instruments and higher density mounting.



2. Load voltage: 20 V

3. Low C×R (C×R3)

Output capacitance: Typ. 1.1 pF, On resistance: Typ. 2.8Ω

TYPICAL APPLICATIONS

1. Measuring and testing equipment

IC tester, Probe card, Board tester and other testing equipment

2. Telecommunication equipment

*Does not support automotive applications.

TYPES

Type	*1 Output rating		*2 Part No. (Tape and reel packing style)		Packing quantity in the tape and reel
	Load voltage	Load current	Picked from the 1 and 4-pin side	Picked from the 2 and 3-pin side	
AC/DC dual use	20 V	180 mA	AQY221N5TY	AQY221N5TW	1,000 pcs.

Notes: *1. Indicate the peak AC and DC values.
*2. Only tape and reel package is available.
For space reasons, only “1N5” is marked on the product as the part number.

RATING

1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

Item		Symbol	AQY221N5T	Remarks
Input side	LED forward current	I_F	50 mA	
	LED reverse voltage	V_R	5 V	
	Peak forward current	I_{FP}	1 A	f = 100 Hz, Duty factor = 0.1%
	Power dissipation	P_{in}	75 mW	
Output side	Load voltage (peak AC)	V_L	20 V	
	Continuous load current	I_L	0.18 A	Peak AC, DC
	Power dissipation	P_{out}	250 mW	
Total power dissipation		P_T	300 mW	
I/O isolation voltage		V_{iso}	200 Vrms	
Ambient temperature	Operating	T_{opr}	–40 to +85°C –40 to +185°F	(Non-icing at low temperatures)
	Storage	T_{stg}	–40 to +100°C –40 to +212°F	

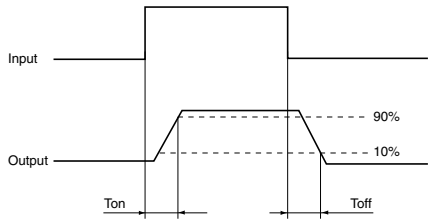
2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item			Symbol	AQY221N5T	Condition
Input	LED operate current	Typical	I_{Fon}	0.7 mA	I_L = 80 mA
		Maximum		3 mA	
	LED turn off current	Minimum	I_{Foff}	0.2 mA	
		Typical		0.6 mA	
	LED dropout voltage	Typical	V_F	1.14 V (1.35 V at I_F = 50 mA)	I_F = 5 mA
		Maximum		1.5 V	
Output	On resistance	Typical	R_{on}	2.8 Ω	I_F = 5 mA, I_L = 80 mA Within 1 s
		Maximum		4.5 Ω	
	Output capacitance	Typical	C_{out}	1.1 pF	I_F = 0 mA, f = 1 MHz, V_B = 0 V
		Maximum		1.5 pF	
	Off state leakage current	Typical	I_{Leak}	0.01 nA	I_F = 0 mA, V_L = Max.
		Maximum		*10 nA	
Transfer characteristics	Turn on time**	Typical	T_{on}	0.02 ms	I_F = 5 mA, V_L = 10 V, R_L = 125 Ω
		Maximum		0.2 ms	
	Turn off time**	Typical	T_{off}	0.01 ms	
		Maximum		0.2 ms	
	I/O capacitance	Typical	C_{iso}	0.4 pF	f = 1 MHz, V_B = 0 V
		Maximum		1.5 pF	

Note: Variation possible through combinations of output capacitance and on resistance. For more information, please contact our sales office in your area.

*Available as custom orders (1 nA or less)

**Turn on/Turn off time



3. Recommended operating conditions (Ambient temperature: 25°C 77°F)

Please use under recommended operating conditions to obtain expected characteristics.

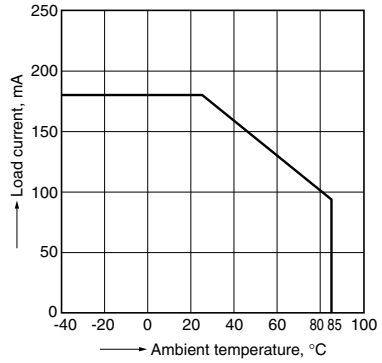
Item		Symbol	Min.	Max.	Unit
LED current		I_F	5	30	mA
AQY221N5T	Load voltage (Peak AC)	V_L	—	10	V
	Continuous load current	I_L	—	0.18	A

■ **These products are not designed for automotive use.**
If you are considering to use these products for automotive applications, please contact your local Panasonic Corporation technical representative.

REFERENCE DATA

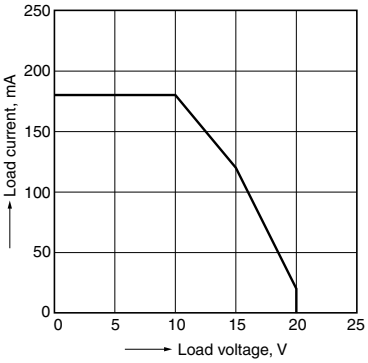
1. Load current vs. ambient temperature characteristics

Allowable ambient temperature: –40 to +85°C
–40 to +185°F



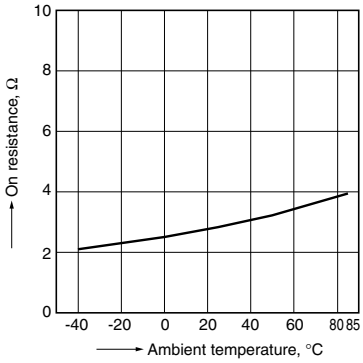
2. Load current vs. load voltage characteristics

Ambient temperature: 25°C 77°F



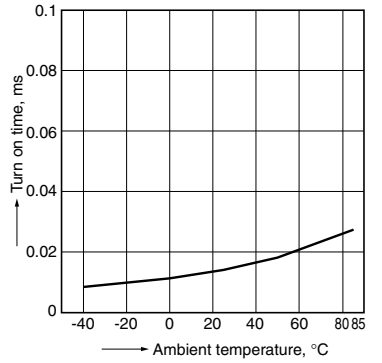
3. On resistance vs. ambient temperature characteristics

Measured portion: between terminals 3 and 4
LED current: 5 mA; Load voltage: 10V (DC)
Continuous load current: 80mA (DC)



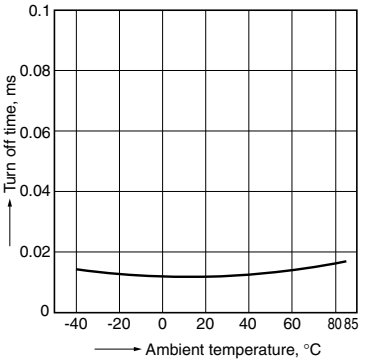
4. Turn on time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC);
Continuous load current: 80mA (DC)



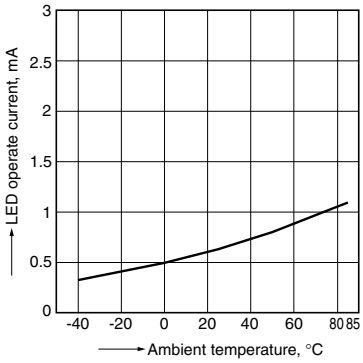
5. Turn off time vs. ambient temperature characteristics

LED current: 5 mA; Load voltage: 10V (DC);
Continuous load current: 80mA (DC)



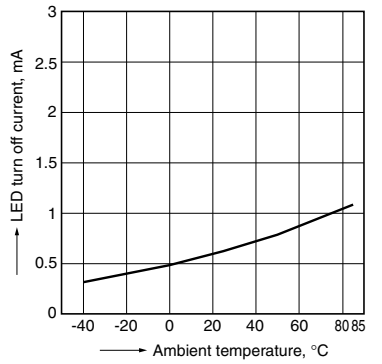
6. LED operate current vs. ambient temperature characteristics

Load voltage: 10V (DC);
Continuous load current: 80mA (DC)



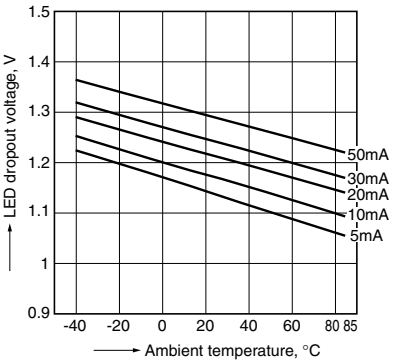
7. LED turn off current vs. ambient temperature characteristics

Load voltage: 10V (DC);
Continuous load current: 80mA (DC)



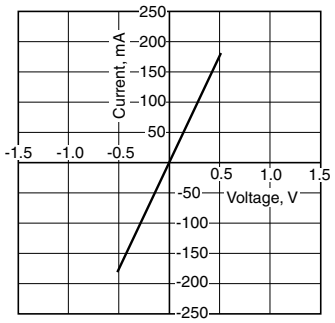
8. LED dropout voltage vs. ambient temperature characteristics

LED current: 5 to 50 mA



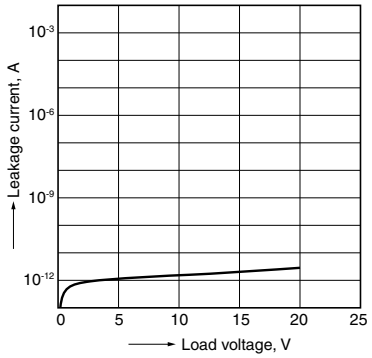
9. Current vs. voltage characteristics of output at MOS portion

Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



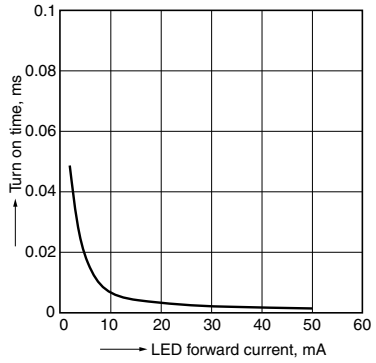
10. Off state leakage current vs. load voltage characteristics

Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



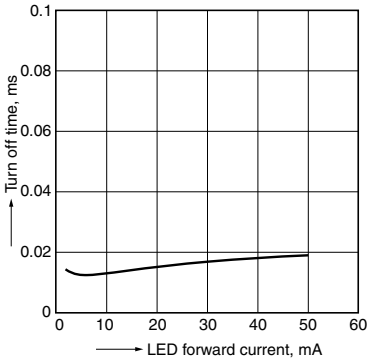
11. Turn on time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4;
Load voltage: 10V (DC); Continuous load current: 80mA (DC); Ambient temperature: 25°C 77°F



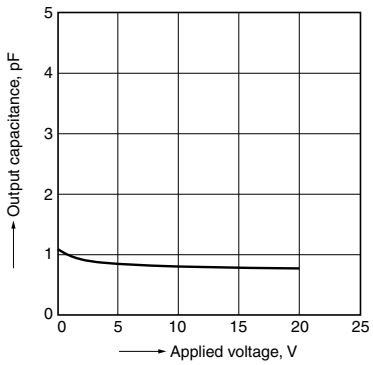
12. Turn off time vs. LED forward current characteristics

Measured portion: between terminals 3 and 4;
Load voltage: 10V (DC); Continuous load current: 80mA (DC); Ambient temperature: 25°C 77°F



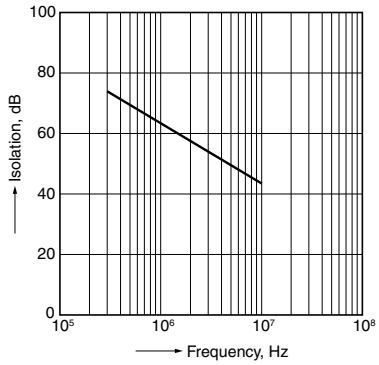
13. Output capacitance vs. applied voltage characteristics

Measured portion: between terminals 3 and 4;
Frequency: 1 MHz; Ambient temperature: 25°C 77°F



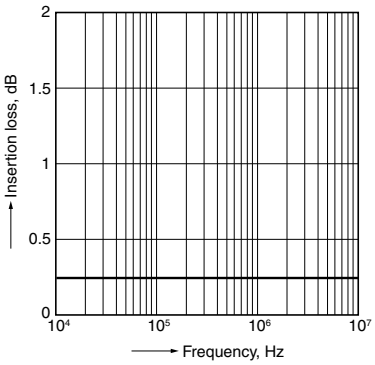
14. Isolation vs. frequency characteristics (50Ω impedance)

Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



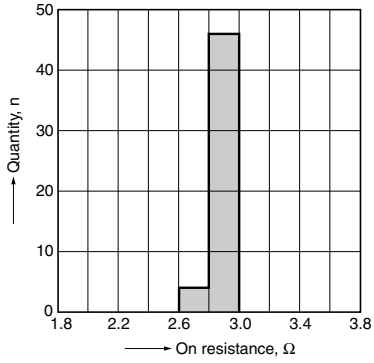
15. Insertion loss vs. frequency characteristics (50Ω impedance)

Measured portion: between terminals 3 and 4;
Ambient temperature: 25°C 77°F



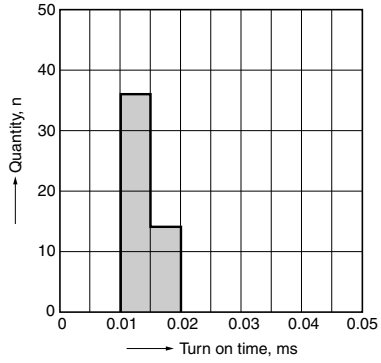
16. On resistance distribution

Measured portion: between terminals 3 and 4
LED current: 5 mA
Continuous load current: 80 mA (DC), n: 50pcs.
Ambient temperature: 25°C 77°F



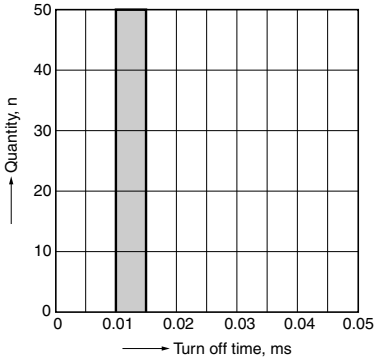
17. Turn on time distribution

Load voltage: 10V (DC)
LED current: 5 mA
Continuous load current: 80 mA (DC), n: 50pcs.
Ambient temperature: 25°C 77°F



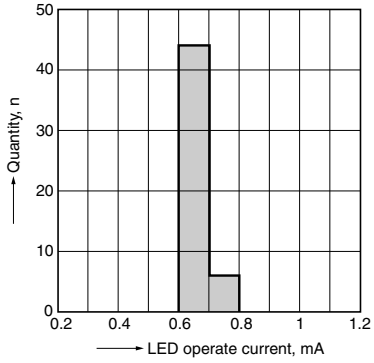
18. Turn off time distribution

Load voltage: 10V (DC)
LED current: 5 mA
Continuous load current: 80 mA (DC), n: 50pcs.
Ambient temperature: 25°C 77°F



19. LED operate current distribution

Load voltage: 10V (DC)
Continuous load current: 80 mA (DC), n: 50pcs.
Ambient temperature: 25°C 77°F



Please contact .....

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